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certain spots proves their disposition to lengthen out in longitudinal directions, and it is significant that this extension appears invariably to take place on the following side. The curious offshoot from the great S. dark belt which was seen in the autumn of 1880 N. of the f. end of the red spot developed into a very prominent belt by the constantly increasing prolongation of its E. end. And the dark patches near the equator generally run from the S. equatorial belt in an oblique direction to the E.; in fact all the visible markings seem to be more or less influenced by this tendency. The behaviour of these objects is evidently controlled by the rapid axial rotation of the planet from which they are evolved. And the true period of this rotation is at present unknown, but is probably much shorter than that usually adopted, though it may never admit of accurate determination, owing to the seemingly persistent obscuration of the planet's real surface.

Bristol: 1883, *Dec.* 24.

On Humidity as a Cause of Variation in the Rate of Chronometers.

By Major-General J. F. Tennant, R.E., F.R.S.

(*Extract from a letter to the Secretary.*)

I recently sent a paper on the change of rate of a chronometer which was due to the humidity of the air. Posssibly this may be in time to be added as a postscript if the paper be printed in the *Notices*.

The change to dry weather has been accompanied by the corresponding change of rate, that from October 22 to November 1 having been $-3^{s}\cdot41$ (losing). I have also heard from Mr. F. Chambers, at Bombay, who has examined the rates of sixty-three chronometers, and in five cases has found rates which are certainly independent of the temperatures, but which do appear to depend on the humidity. He finds (what my results show, though not conclusively) that the variation increases as time passes. If this be confirmed it is almost certain, I conceive, that the variation of rate is due to a gradual change in the oil.

Calcutta:
1883, *Nov.* 12.

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Ephemeris for finding the Positions of the Satellites of Uranus, 1884. By A. Marth.

The angle of position P of the minor axes, the major and minor semi-axes *a* and *b* of the apparent ellipses described by the satellites, and the latitude of the Earth above the assumed plane of their orbits, are the following:—

Greenw. Noon.		P	*Ariel.*		*Umbriel.*		*Titania.*		*Oberon.*		Latit. of Earth.
			a_1	b_1	a_2	b_2	a_3	b_3	a_4	b_4	
1884.		°	″	″	″	″	″	″	″	″	°
Jan.	9	285·59	14·76	+3·11	20·56	+4·33	33·72	+7·11	45·09	+9·51	+ 12·17
	19	·59	14·88	3·11	20·74	4·34	34·01	7·11	45·48	9·51	12·07
	29	·60	15·00	3·09	20·90	4·30	34·28	7·05	45·84	9·43	11·87
Feb.	8	·60	15·10	3·04	21·04	4·23	34·51	6·94	46·16	9·28	11·60
	18	·60	15·19	2·97	21·16	4·13	34·70	6·78	46·41	9·07	11·27
	28	·60	15·25	2·88	21·24	4·01	34·84	6·58	46·59	8·80	10·89
Mar.	9	·59	15·28	2·78	21·29	3·87	34·92	6·33	46·69	8·48	10·47
	19	285·59	15·29	+2·66	21·30	+3·71	34·93	+6·09	46·72	+8·14	+ 10·04
	29	·58	15·27	2·55	21·27	3·55	34·89	5·83	46·65	7·79	9·61
Apr.	8	·57	15·22	2·44	21·21	3·40	34·78	5·57	46·51	7·45	9·21
	18	·57	15·15	2·33	21·11	3·25	34·62	5·33	46·30	7·13	8·85
	28	·56	15·06	2·24	20·98	3·12	34·42	5·12	46·03	6·84	8·55
May	8	·55	14·96	2·16	20·83	3·01	34·17	4·94	45·70	6·61	8·32
	18	·54	14·84	2·11	20·67	2·93	33·90	4·81	45·33	6·43	8·16
	28	285·54	14·70	+2·07	20·49	+2·88	33·61	+4·73	44·94	+6·32	+ 8·09

The longitudes, $u-\mathrm{U}$, of the satellites reckoned in their orbits from the points which are in superior conjunction with the planet's centre, are approximately the following:—

Greenw. Noon.		*Ariel.*		*Umbriel.*		*Titania.*		*Oberon.*	
		$u_1-\mathrm{U}$	Diff.	$u_2-\mathrm{U}$	Diff.	$u_3-\mathrm{U}$	Diff.	$u_4-\mathrm{U}$	Diff.
1884.		°	°	°	°	°	°	°	°
Jan.	9	184·90	1428·46	31·86	868·74	26·71	413·53	221·03	267·39
	19	173·36	·43	180·60	·73	80·24	·52	128·42	·38
	29	161·79	·41	329·33	·71	133·76	·50	35·80	·37
Feb.	8	150·20	·38	118·04	·68	187·26	·48	303·17	·36
	18	138·58	·36	266·72	·66	240·74	·47	210·53	·35
	28	126·94	·33	55·38	·65	294·21	·46	117·88	·34
Mar.	9	115·27	·30	204·03	·64	347·67	·46	25·22	·34
	19	103·57	·28	352·67	·62	41·13	·45	292·56	·33
	29	91·85	·26	141·29	·60	94·58	·45	199·89	·33
Apr.	8	80·11	·24	289·89	·60	148·03	·44	107·22	·34
	18	68·35	·23	78·49	·60	201·47	·45	14·56	·34
	28	56·58	·23	227·09	·61	254·92	·46	281·90	·35
May	8	44·81	·22	15·70	·60	308·38	·47	189·25	·36
	18	33·03	1428·22	164·30	868·61	1·85	413·47	96·61	267·37
	28	21·25		312·91		55·32		3·98	

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